

REMARKS

Claims 1, 7 and 30-38 are presented for examination in this application, of which Claims 1, 7, 30, and 35-38 are in independent form. Claims 2-6 and 8-29 have been canceled, without prejudice or disclaimer of subject matter. Claims 1 and 7 have been amended to define still more clearly what Applicant regards as his invention. Claims 30-38 have been added to assure Applicant a fuller measure of protection of the scope to which he deems himself entitled.

Initially, cancellation of Claim 26 obviates the objection to the specification.

In the Office Action, Claim 1 was rejected under 35 U.S.C. § 103(a) as being obvious from U.S. Patent 6,002,433 (Watanabe et al.) in view of U.S. Patent 6,611,288 (Fossum et al.), and Claim 7, as being obvious from *Fossum* in view of U.S. Patent No. 5,621,467 (Chien et al.).

Independent Claim 1 is directed to an image processing apparatus that comprises extraction means for extracting a pixel signal of an image pickup means ~~having~~ that has a plurality of pixels, and for determining positional information of defective pixels based on the pixel signal, and block-forming means for judging whether a plurality of the defective pixels are adjacent to each other on the basis of the positional information of the defective pixels and for extracting regional information of the adjacent defective pixels. Also provided are storage means for storing the extracted regional information of the adjacent defective pixels.

The aim of the aspect of the invention to which Claim 1 is directed, is to extract and store regional information of adjacent defective pixels. By virtue of this feature

it is possible to reduce the capacity of data that needs to be stored. In addition, by using the regional information of the defective pixels, when the defective pixels are corrected using peripheral pixels of the defective pixels, such correction is performed effectively.

Watanabe relates to a circuit for detecting defective pixels in a solid-state image pick-up device, which reads signals from all the pixels of the device only when a light-intercepting plate is first moved into the light-intercepting position after battery replacement. Each pixel's signal is compared with a threshold value, and the result of this comparison is used to determine which pixels are possibly defective. The signal from each of those pixels is then read a prescribed number of times, and the cumulative signal is compared with a second threshold value, and this comparison is taken as indicating the pixels that are actually defective. The Office Action states (and Applicant agrees) that *Watanabe* does not teach the block-forming means (as originally recited) of Claim 1. Applicant notes that nothing has been found in that patent that would teach or suggest judging whether a plurality of defective pixels are adjacent to each other based on positional information of the defective pixels, or extracting regional information of any adjacent defective pixels, much less storing any such extracted regional information, as recited in Claim 1.

Fossum relates to a technique for dead-pixel correction, in which dead pixels are identified, and their locations are stored (assuming that the total number does not exceed a pre-set limit). If any plurality of dead pixels occurs in one of several predefined configurations, such as an entire row or column being defective, of a pixel and all its immediate neighbors being defective, then only one dead-pixel address is stored for the

entire set, along with a code indicating which of those configurations is present. This conserves the amount of memory needed to store the dead-pixel information.

Applicant submits, however, that the *Fossum* approach merely indicates, for each such configuration of dead pixels, a range in which the defective pixels exist relative to the single stored address, and that nothing in that patent teaches or suggests storing positional information for each of the defective pixels within such a configuration. Even if *fossum* is combined with *Watanabe*, therefore (and even assuming such combination would be permissible), the result would not provide either a “block-forming means for judging whether a plurality of the defective pixels are adjacent to each other on the basis of the positional information of the defective pixels and for extracting regional information of the adjacent defective pixels”, or a storage means for storing such information, as recited in Claim 1, and that claim is therefore believed clearly allowable over those two patents.

Independent Claim 7 is directed to an image processing apparatus that comprises storage means for storing regional information of adjacent defective pixels, and correction means for correcting the defective pixels by using peripheral pixels of the defective pixels. Claim 7 also recites that the correction means changes a correction method of the defective pixels by using the regional information.

As mentioned, *Fossum* stores a pixel address and a code identifying an area that includes plural defective pixels, but nothing has been found or pointed out in that patent that would teach or suggest storing positional information for all the defective pixels within a block, or performing correction of defective pixels in consideration of the adjacent state of the defective pixels in a block, as recited in Claim 7.

Chien relates to a technique for concealing errors, by substituting data for a lost block of data. The substitute data may be generated using interpolation (either spatial or temporal). It should be noted, however, that the term "block" refers only to a block of a sort suitable for use in data compression, and it does not teach or suggest a block of a plurality of defective pixels adjacent to each other (the latter sort of block, of course, may be of a shape quite different from what would be suitable for compression processing). Further, nothing has been found in *Chien* about extracting and correcting defective pixels in a pick-up device. Even if this patent is combined with *Fossum*, therefore (and again, even assuming such combination would be permissible), the result would not meet the terms of Claim 7, and that claim is believed to be clearly allowable over the art cited against it.

Each of the other independent claims contains recitations similar to one or the other of Claims 1 and 7, and each is therefore deemed allowable for reasons similar to those given above.

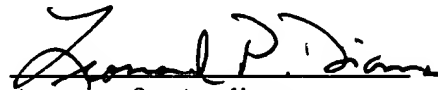
A review of the other art of record has failed to reveal anything which, in Applicant's opinion, would remedy the deficiencies of the art discussed above, as references against the independent claims herein. Those claims are therefore believed patentable over the art of record.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual consideration or reconsideration, as the case may be, of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicant respectfully requests favorable reconsideration and early passage to issue of the present application.

Applicant's undersigned attorney may be reached in our New York Office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address listed below.

Respectfully submitted,



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